



ELLIIT Nyhetsblad 8 – Juni 2014

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Målet med ELLIITs nyhetsblad är att sprida information om händelser och nyheter från ELLIIT. Nyhetsbladet är skrivet på en blandning av svenska och engelska.

Nyheter

Ny ELLIIT koordinator

Då Michael Lögdlund har fått ett nytt uppdrag som programchef för ett strategiskt innovationsprogram inom elektronik, så kommer Sara Strömberg från LiU-Grants Office att ersätta honom som koordinator i ELLIIT. ELLIITs exekutiva ledning vill framföra sitt tack och stora uppskattning till Michael för hans gedigna arbete med ELLIIT, och speciellt för hans ledarskap och insatser med budget, rapporterings- och planeringsarbete.

Sara började på Grants Office 2010 och har framförallt arbetat med EU-projekt, både i ansökningsfas men mest i pågående projekt som projektkoordinator, med övergripande ansvar för deadlines, rapportering till EU, styrelsemöten, och kontakter med partners samt EU-kommissionen. Hon har sin grundutbildning vid LiU (Medicinsk Biologi) och har gjort sin doktorsavhandling samt postdoc inom medicin på Uppsala Universitet. Email till Sara är sara.stromberg@liu.se

LCCC och CADICS utvärderade

De två Linné-miljöer som ingår i ELLIIT – LCCC på LU och CADICS på LiU – klarade båda av den halvtidsutvärdering som genomförts under 2013/14. Anslagsbeloppet kommer för båda miljöerna att vara oförändrat också under den avslutande femårsperioden 2014-2018.

EASE utvärderat

Det industriella excellenscentret EASE har utvärderats av tre externa internationella granskare på uppdrag av Vinnova. Dessa ger goda vitsord till centret, och konstaterar: "The size of the Centre would be too small to cover all the themes it has the ambition to address, but it can have an impact on these themes as it is located in the larger environment of the two universities providing synergies with other projects and centres (e.g. ELLIIT)." "EASE and SoS are very good and also provide an excellent return on the government investment through INDEC" Från Vinnovas sida innebär detta ett klartecken för den sista treårsperioden av centret.



DigiTrust slutseminarium

Det tvärvetenskapliga forskningsprojektet DigiTrust, som genomförts vid Lunds Universitets Pufendorfinstitut genomförde sitt slutseminarium den 11 juni. Projektet med 10 deltagare, varav två från LTH/CS och LTH/EIT presenterade då en antologi "DigiTrust: Tillit i det digitala – Tvärvetenskapliga perspektiv från ett forskningsprojekt" som kan laddas ner via: <http://lup.lub.lu.se/record/4461283>. Projektet har lett till pressbevakning på Svenska Dagbladets opinionssidor, via TT och i Aftonbladet, SvD, GP, DN.ekonomi, SvT, och Affärsvärlden. <http://digitalsociety.se>



The LU Massive MIMO testbed LuMaMi.

Tests with Lund University Massive MIMO testbed, LuMaMi, start

The testbed for Massive MIMO, LuMaMi, that is at EIT is soon operational. All parts are assembled and initial tests have started. The testbed is the largest in the world and comprises 100 coherent parallel RF chains that feed as many antenna elements. LuMaMi is developed in cooperation with National Instruments and is based on the fundamental Massive MIMO work performed within ELLIIT. During the fall it will be used in our joint EU project MAMMOET for developing algorithms and evaluating the performance under real-time operation.



ELLIIT paper gains attention

The “ELLIIT paper” Massive MIMO for next generation wireless systems, by Erik Larsson, Ove Edfors, Fredrik Tufvesson and Tom Marzetta that was published in the February issue of IEEE Communications Magazine has attracted a lot of attention lately. In May it was the second most downloaded in the whole research database IEEEExplore.

ELLIIT Workshop 2014 in Norrköping

The fifth ELLIIT workshop will be organized by Linköping University, 23-24 October, with Timo Ropinski as program chair. The workshop will be held at Campus Norrköping.

Nordic Workshop on Programming Theory in Halmstad

The 26th Nordic Workshop on Programming Theory, NWPT '14, is to be held from October 29 to October 31, 2014, at CERES, Halmstad University; more information is available from: http://ceres.hh.se/mediawiki/index.php/NWPT_2014

Seventh Swedish Workshop on Multicore Computing in Lund

Krzysztof Kuchcinski (LU/CS) will organize this year Seventh Swedish Workshop on Multicore Computing. The workshop will take place in Lund at November 27-28, 2014.

Some Publications:

- R. Moosavi and E. G. Larsson, “Fast blind recognition of channel codes,” *IEEE Transactions on Communications*, vol. 62, pp. 1393–1405, May 2014. We designed a fast algorithm for determining whether or not a particular sequence of baseband samples originates from encoding with a particular channel code. Possible applications include LTE handsets, where a “blind” search among a large number of code candidates is needed to decode the physical-layer control information.
- H.Q.Ngo, H.A.Suraweera, M.Matthaiou and E.G.Larsson, “Multipair full-duplex relaying with massive arrays and linear processing,” *IEEE Journal on Selected Areas in Communications*. To appear. We examine the application of some ideas from the massive MIMO concept to full duplex wireless communications.
- R. Moosavi and E. G. Larsson, “Optimized encoding of scheduling assignments using finite blocklength coding bounds,” *IEEE Wireless Communications Letters*. To appear. Here we look at the physical-layer control signaling problem in wireless communications using modern information theoretic tools.
- C.-K. Ho, D. Yuan, and S. Sun. D. Data offloading in load coupled networks: a utility maximization framework. *IEEE Transactions on Wireless Communications*. Accepted for publication.
- D. Adjashvili, S. Bosio, Y. Li, and D. Yuan. Exact and approximation algorithms for optimal equipment selection in deploying in-building distributed antenna systems. *IEEE Transactions on Mobile Computing*. Accepted for publication.



- Shen-Jui Huang, Sau-Gee Chen, Mario Garrido and Shyh-Jye Jou, "Continuous-flow Parallel Bit-Reversal Circuit for MDF and MDC FFT Architectures", *IEEE Transactions on Circuits and Systems I: Regular Papers*. Accepted for publication.
- Sergiu Rafiliu, Petru Eles, Zebo Peng, and Michael Lemmon, "Stability of On-line Resource Managers for Distributed Systems under Execution Time Variations", *ACM Transactions on Embedded Computing Systems*, 2014. Accepted for publication.
- Niklas Fors and Görel Hedin. Intercepting Dataflow Connections in Diagrams with Inheritance. IEEE Symposium on Visual Languages and Human-Centric Computing, 28 July - 1 August, 2014, Melbourne, Australia
- Cruzes, D. S., T. Dybå, P. Runeson, and M. Höst (2014). Case Studies Synthesis: A Thematic, Cross-Case, and Narrative Synthesis Worked Example A Thematic, Cross-Case, and Narrative Synthesis Worked Example. Empirical Software Engineering Accepted for publication. (Samarbete med NTNU/Sintef)
- Petersen, K., P. Roos, S. Nyström, and P. Runeson (2014). Early Identification of Bottlenecks in System of Systems Software Development. *Journal of Software: Evolution and Process* online. (Samarbete med FindOut AB)
- Wnuk, K., P. Runeson, M. Lantz, and O. Weijden (2014). Bridges and Barriers to Software Ecosystem Participation - a Case Study. *Information and Software Technology* Accepted for publication. (Samarbete med Axis)
- Katerina Vrotsou, Mathias Bergqvist, Matthew Cooper, and Kajsa Ellegård. PODD: a portable diary data collection system. In *Proceedings of the 2014 International Working Conference on Advanced Visual Interfaces (AVI'14)*, May 2014, Como, Italy. ACM, New York, NY, USA, 381-382.

Keynotes and Invited Talks:

- E. G. Larsson (LiU/ISY) gave an invited talk in the IEEE Communication Theory Workshop 2014. He presented new results on low-PAR multiuser precoding for massive MIMO systems and specifically a comparison between conventional precoding and low-PAR precoding in terms of power consumed in the RF power amplifiers, taking into account the amplifier backoff required to meet given distortion targets.
- E. G. Larsson also gave a keynote in the ITG Workshop on Smart Antennas, Erlangen, Germany in March 2014.
- K-E Årzén gave a keynote in the CyPhERS 2nd Experts Workshop, CPSWeek 2014, Berlin, Germany, April 14 2014.
- K-E Årzén gave a keynote at the 9th IEEE International Symposium on Industrial Embedded Systems, Pisa, Italy, 19 June 2014.
- Timo Ropinski (LiU/ITN) will give a keynote entitled 'Designing Effective Graphical Interfaces' at the Spanish Computer Graphics Conference (CEIG 2014).

Awards and Appointments:

- Lei Lei at LiU/ITN/Mobile telecommunications received the Best Student Journal Paper Award of IEEE Sweden VT-COM-IT Joint Chapter for year 2014. (Supervisor: Di Yuan)
- Hien Ngo (LiU/ISY/Comm. systems) has won a Bell-Labs International Ph.D. program internship and will be spending the rest of this year at Bell-Labs, NJ, USA.
- Emil Björnson (new ELLIIT faculty recruitment, at LiU/ISY/Comm. systems) won a best paper award at the 2014 IEEE Wireless Communications and Networking Conference (WCNC) for his paper (with Luca Sanguinetti, Jakob Hoydis, and Mérouane Debbah) “Designing Multi-User MIMO for Energy Efficiency: When is Massive MIMO the Answer?”.
- Fredrik Tufvesson (board member and deputy director for the Lund part of ELLIIT) has been promoted to Professor of Radio systems at EIT in Lund.
- Best Student Paper Award to Chenxin Zhang. After successfully defending his PhD Thesis on May 27, Chenxin Zhang and co-authors received the Best Student Paper Award in competition with >600 papers at ISCAS for: C. Zhang, H. Prabhu, L. Liu, O. Edfors and V. Öwall, “Energy Efficient SQRD Processor for LTE-A using a Group-sort Update Scheme”, IEEE International Symposium on Circuits and Systems (ISCAS), 2014, Melbourne, Australia.

Program chairs and Editorships:

- On November 5, Mohammad Mousavi is organizing a session on Testing Embedded Software at Embedded Conference Scandinavia in Kista. More information can be found at: <http://www.embeddedconference.se/>
- Karl-Erik Årzén (LU/AC) has been appointed General Chair for the Euromicro Conference on Real-Time Systems (ECRTS 15) to be held in Lund, July 7-10, 2015.
- E. G. Larsson has been appointed General Chair of the 49th Asilomar Conference on Signals, Systems and Computers in 2015.
- Anders Rantzer (LU/AC) has been appointed Program Chair for the European Control Conference 2016 (ECC 2016) to be held in Aalborg, Denmark.
- Camilla Forsell (LiU/ITN) was one of the organizers of the workshop “Toward Visualization-Specific Heuristic Evaluation”, June 10, Co-located event at Eurovis - The Eurographics Conference on Visualization, 9-13 juni Swansea, Wales, UK. [URL:http://eurovis.swansea.ac.uk/co-located-events.htm](http://eurovis.swansea.ac.uk/co-located-events.htm)
- Camilla Forsell was symposium committee member and organizer of the Symposium on Information Visualization Evaluation, part of the IEEE 18th International Conference Information Visualisation, (iV2014) 15-18 July 2014, Paris, France.
- Ove Edfors and Fredrik Rusek are arranging a Massive MIMO workshop, “Massive MIMO: From theory to practice” at Globecom in Austin December 8, see <http://mamiws.eit.lth.se/>

Dissertations:

- 2014-04-23: PhD dissertation: Vanessa Romero Segovia, “CPU Resource Management and Noise Filtering for PID Control”, Dept. of Automatic Control, LTH, Lund University
- 2014-05-23: PhD dissertation: Karl Berntorp, “Particle Filtering and Optimal Control of Vehicles and Robots”, Dept. of Automatic Control, LTH, Lund University
- 2014-06-09: PhD dissertation: Mikael Lindberg, “From Competitive to Cooperative Resource Management for Cyber-Physical Systems”, Dept. of Automatic Control, LTH, Lund University
- 2014-06-13 PhD dissertation: Daria Madjidian, “Low-Rank Distributed Control with Application to Wind Energy”, Dept. of Automatic Control, LTH, Lund University
- 2014-02-21, Mirsad Čirkić (LiU/ISY/comm. systems) successfully defended his Ph.D. thesis “Efficient MIMO Detection Methods”. He is now with Ericsson Research, Linköping.
- 2014-05-09: Patrik Axelsson, "Sensor Fusion and Control Applied to Industrial Manipulators", Automatic Control, ISY, LiU
- 2014-05-05: Sara Modarres Razavi at LiU/ITN/Mobile telecommunications successfully defended her Ph.D. thesis “Planning and Optimization of Tracking Areas in Long Term Evolution Networks”.
- Khao Tan Nguyen has defended his PhD at the Department of Science and Technology (ITN) at Linköping University. The thesis title is “Supporting Quantitative Visual Analysis in Medicine and Biology in the Presence of Data Uncertainty”.

Nya rekryteringar

Postdoc från Dresden till LU/CS

Christoff Bürger, TU Dresden, kommer att tillbringa 1 år som postdoc vid CS/LTH med start 15 oktober 2014.

New Assistant Professors at LU/AC

Dr. Martina Maggio from Politecnico di Milano and Dr. Pontus Giselsson from LU have both been appointed Assistant Professor (“Biträdande Lektor”) at LU/AC.

New Assistant Professor at LU/CS

Dr. Elizabeth Bjarnason har anställts som biträdande lektor vid institutionen för datavetenskap från 2014-04-01.

Forskningsfinansiering

- Di Yuan (LiU) received a research grant of 1.3 MSEK from Norrköping's Foundation Fond for Research & Development for analysis and utilization of mobility data.